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10/772,655	02/05/2004	Yun Luo	TRW(TE)6894	6238

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EXAMINER	
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/772,655	LUO ET AL.	
	Examiner	Art Unit	
	KATRINA FUJITA	2624	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *23 May 2008*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-10,13,15-17 and 19-28* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-10,13,15-17 and 19-28* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

1. This Office Action is responsive to Applicant's remarks received on May 23, 2008. Claims 1-10, 13, 15-17 and 19-28 remain pending.

Specification

2. The abstract of the disclosure is objected to because it contains reference numerals from the drawings. Correction is required. See MPEP § 608.01(b).

Claim Objections

3. The following is a quotation of 37 CFR 1.75(a):

> The specification must conclude with a claim particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention or discovery.

4. Claims 1-4, 7, 8, 13, 19, 22, 27 are objected to under 37 CFR 1.75(a), as failing to particularly point out and distinctly claim the subject matter which application regards as his invention or discovery.

Claim 1 requires "the class composite image" in line 9. It is unclear whether this is intended to be the same as or different from the “three-dimensional class composite image” in line 7. The following will be assumed for examination purposes: -- the three-dimensional class composite image --. The same applies to claim 2, line 3, claim 3, line 2, and claim 8, line 2.

Claim 4 requires a “grid pattern” in line 3. It is unclear whether this is intended to be the same as or different from the “three-dimensional grid pattern" in line 8 of claim 1. The following will be assumed for examination purposes: -- three-dimensional grid pattern --. The same applies for claim 7, line 1 and claim 8, line 1.

Claim 13 requires a “three-dimensional class composite image” in line 10. It is unclear whether this is intended to be the same as or different from the “three-dimensional class composite image” in line 7. The following will be assumed for examination purposes: -- the three-dimensional class composite image --.

Claim 19 requires a “grid pattern” in line 10. It is unclear whether this is intended to be the same as or different from the “initial grid pattern” in line 8. The following will be assumed for examination purposes: -- the initial grid pattern --. The same applies for line 11, claim 22, line 2, claim 27, line 2.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claims 1-9, 13, 15-17, 19-23 and 25-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Murphey et al. ("Feature Extraction for a Multiple Pattern...", IEEE Article), common knowledge in the art as evidenced by Covell et al. (US 7,003,134) and Krumm (US 5,983,147).

Regarding **claim 1**, Murphey et al. discloses a system for selectively generating training data for a pattern recognition classifier ("multiple pattern classification neural network system" at section 3, line 1) from a plurality of training images representing an output class ("k sets of training images $T_{r1}, T_{r2},\ldots,T_{rk}$, where images in T_{ri} belong to class i" at section 2, paragraph 2, line 1), said system comprising:

a plurality of training images representing an output class ("k sets of training images $T_{r1}, T_{r2},\ldots,T_{rk}$, where images in T_{ri} belong to class i" at section 2, paragraph 2, line 1);

an image synthesizer that combines the plurality of training images into a class composite image ("generates a feature image for every class of patterns" at page 221, left column, line 5);

a grid generator that generates a grid pattern representing the output class from the class composite image ("refining segment grids in each class feature image" at page 221, right column, line 9); and

a feature extractor that extracts feature data from the plurality of training images according to the generated grid pattern ("computing the features from subimages defined by these grids" at page 221, right column, fourth full paragraph, line 6).

Murphey et al. does not disclose three-dimensional training images, a three-dimensional class composite image and a three-dimensional grid pattern.

However, it is well-known in the art to utilize three-dimensional images that provide depth information for purposes of pattern recognition.

Therefore, it would have been obvious at the time the invention was made to one of ordinary skill in the art to utilize three-dimensional information for the training images, class composite image and grid pattern as the depth information is "less sensitive to illumination and shading effects than intensity data as an object translates and rotates through space. Hence, the depth data is frequently more reliable than the brightness information" Covell et al. at col. 3, line 25).

The Murphey et al. and common knowledge combination does not disclose a stereo vision system that images the interior of a vehicle to provide the plurality of three-dimensional training images.

Krumm et al. teaches a system for selectively generating training data for a pattern recognition classifier ("This system was tested in a vehicle that had been trained

with approximately 100 images of each situation" at col. 5, line 14) associated with a vehicle occupant safety system ("present invention relates generally to automotive vehicle occupant restraint systems, particularly air bags" at col. 1, line 14) comprising a stereo vision system (figure 1, numeral 26) that images the interior of a vehicle to provide the plurality of three-dimensional training images ("disparity image--one that gives disparity values at every point in the image" at col. 6, line 17; "disparity images are functions of 3D structure" at col. 7, line 31; "disparity training images" at col. 7, line 36).

It would have been obvious at the time the invention was made to one of ordinary skill in the art to utilize the vision system of Krumm et al. to provide the training images of the Murphey et al. and common knowledge combination as the disparity images "do not need the preprocessing normalization and histogram steps utilized on the intensity images" (Krumm at col. 7, line 32).

Regarding **claim 2**, the Murphey et al., common knowledge and Krumm et al. combination discloses a system wherein the grid generator generates the grid pattern according to at least one attribute of interest associated with the three-dimensional class composite image ("In order to emphasize the areas that have distinct features of each class, the dynamic grids finding algorithm uses an iterative procedure that increases the resolution of important feature area" Murphey et al. at page 221, right column, line 6).

Regarding **claim 3**, the Murphey et al., common knowledge and Krumm et al. combination discloses a system wherein the grid pattern divides the three-dimensional class composite image with a plurality of intersecting planes and curved surfaces into a

plurality of sub-images ("divided the class feature image, say feature_image_cl_i for class i, into a coarse scale subimages" at page 221, right column, line 13; a curve can be defined as "the intersection of two surfaces in three dimensions" as given in the American Heritage Dictionary), the feature extractor extracting data relating to each of the plurality of sub-images ("computing the features from subimages defined by these grids" at page 221, right column, fourth full paragraph, line 6).

Regarding **claim 4**, the Murphey et al., common knowledge and Krumm et al. combination discloses a system wherein the grid generator operates according to a grid generation algorithm to select one of the plurality of sub-images according to an attribute of interest ("iterative procedure that looks for the subimage j that has the greatest energy" at page 221, right column, second full paragraph, line 5) and modifies the three-dimensional grid pattern according to the selected sub-image ("Once the subimage j is found and assume the subimage has size $2^{kj}X2^{kj}$, then the subimage is divided into 4 new subimages" at page 221, third full paragraph, line 1).

Regarding **claim 5**, Murphey et al. discloses a system wherein the attribute of interest is a maximum average grayscale value out of a plurality of average grayscale values associated with respective sub-images ("average value of each subimage" at page 221, right column, fourth full paragraph, line 12; "gray scale intensity images" at page 221, left column; "subimage j that has the greatest energy" at page 221, right column, second full paragraph, line 6).

Regarding **claim 6**, the Murphey et al., common knowledge and Krumm et al. combintion discloses the elements of claim 4 as described above.

The Murphey et al., common knowledge and Krumm et al. combintion does not explicitly disclose that the attribute of interest is a maximum grayscale variance out of a plurality of grayscale variances associated with the respective sub-images.

However, as shown in the disclosure of Murphey et al., depending on the input image type, an appropriate feature type may employed for optimum results ("For different types of training images, one can use feature image differently" at page 221, left column). Furthermore, Murphey et al. discloses the use of average grayscale values as the attribute of interest as described above.

Therefore, choosing maximum grayscale variance as the attribute of interest would have been obvious at the time the invention was made to one of ordinary skill in the art as the variance of a sample is directly applicable to the average of the sample and would better distinguish between types of training images.

Regarding **claim 7**, the Murphey et al., common knowledge and Krumm et al. combination discloses a system wherein the three-dimensional grid pattern is modified as to divide the selected sub-image into a plurality of sub-images ("the subimage is divided into 4 new subimages" at page 221, third full paragraph, line 2).

Regarding **claim 8**, the Murphey et al., common knowledge and Krumm et al. combination discloses a system wherein the three-dimensional grid pattern is iteratively modified until a grid pattern that divides the three-dimensional class composite image into a threshold number of sub-images has been generated ("The above process repeats until the number of subimages exceeds a preset number" at page 221, right column, third full paragraph, line 3).

Regarding **claim 9**, Murphey et al. discloses a system further comprising a pattern recognition classifier that is trained using the extracted feature data ("class grids obtained by the above procedure are used to training classifiers" at page 222, left column, first paragraph 1, line 1).

Regarding **claim 13**, Murphey et al. discloses a system for selectively generating training data for a pattern recognition classifier ("multiple pattern classification neural network system" at section 3, line 1) associated with a vehicle occupant safety system ("trained the system to classify occupant inside a vehicle" at section 3, line 3) comprising:

a plurality of training images representing an output class ("k sets of training images T_{r1}, T_{r2},...,T_{rk}, where images in T_{ri} belong to class i" at section 2, paragraph 2, line 1);

an image synthesizer that combines the plurality of training images to provide a class composite image ("generates a feature image for every class of patterns" at page 221, left column, line 5).

a grid generator that generates a grid pattern, comprising a plurality of intersecting planes and curved surfaces, arranged to provide sub-image regions, representing the output class ("refining segment grids in each class feature image" at page 221, right column, line 9; a curve can be defined as "the intersection of two surfaces in three dimensions" as given in the American Heritage Dictionary) from the class composite image ("class feature image" at page 221, left column, at "step 3"); and

a feature extractor that extracts training data from the plurality of training images according to the generated grid pattern (“computing the features from subimages defined by these grids” at page 221, right column, fourth full paragraph, line 6).

Murphey et al. does not disclose three-dimensional training images and a three-dimensional class composite image.

However, it is well-known in the art to utilize three-dimensional images that provide depth information for purposes of pattern recognition.

Therefore, it would have been obvious at the time the invention was made to one of ordinary skill in the art to utilize three-dimensional information for the training images and class composite image as the depth information is "less sensitive to illumination and shading effects than intensity data as an object translates and rotates through space. Hence, the depth data is frequently more reliable than the brightness information" Covell et al. at col. 3, line 25).

The Murphey et al. and common knowledge combination does not disclose a stereo vision system that images the interior of a vehicle to provide the plurality of three-dimensional training images.

Krumm et al. teaches a system for selectively generating training data for a pattern recognition classifier (“This system was tested in a vehicle that had been trained with approximately 100 images of each situation” at col. 5, line 14) associated with a vehicle occupant safety system (“present invention relates generally to automotive vehicle occupant restraint systems, particularly air bags” at col. 1, line 14) comprising a

stereo vision system (figure 1, numeral 26) that images the interior of a vehicle to provide the plurality of three-dimensional training images ("disparity image--one that gives disparity values at every point in the image" at col. 6, line 17; "disparity images are functions of 3D structure" at col. 7, line 31; "disparity training images" at col. 7, line 36).

It would have been obvious at the time the invention was made to one of ordinary skill in the art to utilize the vision system of Krumm et al. to provide the training images of the Murphey et al. and common knowledge combination as the disparity images "do not need the preprocessing normalization and histogram steps utilized on the intensity images" (Krumm at col. 7, line 32).

Regarding **claim 15**, Murphey et al. discloses a system wherein the plurality of training images representing the output class includes images of a human adult seated within the vehicle interior ("There were four different classes of patterns, adult, child empty seat and rear facing infant seas (Rfis)" at section 3, line 4).

Regarding **claim 16**, Murphey et al. discloses a system wherein the plurality of training images representing the output class includes images of a rearward facing infant seat positioned within the vehicle interior ("There were four different classes of patterns, adult, child empty seat and rear facing infant seas (Rfis)" at section 3, line 4).

Regarding **claim 17**, Krumm et al. discloses a system wherein the plurality of training images representing the output class includes images of a human head ("classified into three classes (empty, RFIS, occupied)" at col. 7, line 9; "various features on the occupant (e.g. top of head, shoulders, seat)" at col. 9, line 59).

Regarding **claim 19**, Murphey et al. discloses a method for selectively generating training data for a pattern recognition classifier ("multiple pattern classification neural network system" at section 3, line 1, which performs the method) from a plurality of training images representing a desired output class ("k sets of training images T_{r1}, $T_{r2}, \ldots, T_{rk}$, where images in T_{ri} belong to class i" at section 2, paragraph 2, line 1), said method comprising the steps of:

generating a representative image that represents the output class ("generates a feature image for every class of patterns" at page 221, left column, line 5);

dividing the representative image according to an initial grid pattern to form a plurality of sub-images ("divided the class feature image, say feature_image_cl_i for class i, into a coarse scale subimages" at page 221, right column, line 13);

identifying at least one sub-image formed by said initial grid pattern having at least one attribute of interest ("iterative procedure that looks for the subimage j that has the greatest energy" at page 221, right column, second full paragraph, line 5);

modifying said initial grid pattern to add at least one of a plane and a curved surface to the initial grid pattern in response to the identified at least one sub-image having said at least one attribute of interest so as to form a modified grid pattern ("Once the subimage j is found and assume the subimage has size $2^{kj}X2^{kj}$, then the subimage is divided into 4 new subimages" at page 221, third full paragraph, line 1); and

using the modified grid pattern to extract respective feature vectors from the plurality of training images ("computing the features from subimages defined by these grids" at page 221, right column, fourth full paragraph, line 6).

Murphey et al. does not disclose a representative three-dimensional image and three-dimensional grid pattern.

However, it is well-known in the art to utilize three-dimensional images that provide depth information for purposes of pattern recognition.

Therefore, it would have been obvious at the time the invention was made to one of ordinary skill in the art to utilize three-dimensional information for the representative image and grid pattern as the depth information is "less sensitive to illumination and shading effects than intensity data as an object translates and rotates through space. Hence, the depth data is frequently more reliable than the brightness information" Covell et al. at col. 3, line 25).

The Murphey et al. and common knowledge combination does not disclose that the representative three-dimensional image is generated at a stereo camera.

Krumm et al. teaches a system for selectively generating training data for a pattern recognition classifier ("This system was tested in a vehicle that had been trained with approximately 100 images of each situation" at col. 5, line 14) from a plurality of training images representing a desired output class ("disparity training images" at col. 7, line 36) comprising generating a representative three-dimensional image that represents the output class at a stereo camera ("disparity image--one that gives disparity values at every point in the image" at col. 6, line 17; "disparity images are functions of 3D structure" at col. 7, line 31).

It would have been obvious at the time the invention was made to one of ordinary skill in the art to utilize the vision system of Krumm et al. to provide the training images of the Murphey et al. and common knowledge combination as the disparity images "do not need the preprocessing normalization and histogram steps utilized on the intensity images" (Krumm at col. 7, line 32).

Regarding **claim 20**, Murphey et al. discloses a method wherein the step of generating a representative image includes combining the plurality of training images to form a class representative image class ("generates a feature image for every class of patterns" at page 221, left column, line 5).

Regarding **claim 21**, Murphey et al. discloses a method where the step of generating a representative image includes averaging grayscale values across corresponding pixels in the plurality of training images ("average value of each subimage" at page 221, right column, fourth full paragraph, line 12; "gray scale intensity images" at page 221, left column).

Regarding **claim 22**, Murphey et al. discloses a method wherein the step of modifying the initial grid pattern includes modifying the initial grid pattern to divide the identified sub-images into respective pluralities of sub-images ("the subimage is divided into 4 new subimages" at page 221, third full paragraph, line 2).

Regarding **claim 23**, Murphey et al. discloses a method wherein the at least one attribute of interest includes an average grayscale value associated with a sub-image that exceeds a threshold value ("iterative procedure that looks for the subimage j that has the greatest energy" at page 221, right column, second full paragraph, line 5;

"average value of each subimage" at page 221, right column, fourth full paragraph, line 12; "gray scale intensity images" at page 221, left column).

Regarding **claim 25**, Murphey et al. discloses a method wherein the at least one attribute of interest includes a maximum average grayscale value out of a plurality of average grayscale values associated with respective sub-images ("average value of each subimage" at page 221, right column, fourth full paragraph, line 12; "gray scale intensity images" at page 221, left column; "subimage j that has the greatest energy" at page 221, right column, second full paragraph, line 6).

Regarding **claim 26**, Murphey et al. discloses a method wherein the step of using the modified grid pattern to extract respective feature vectors from the plurality of training images includes applying the modified grid pattern to a training image to form a plurality of sub-images from the training image ("divided the class feature image, say feature_image_cl_i for class i, into a coarse scale subimages" at page 221, right column, line 13) and extracting at least one element associated with a respective feature vector from each of the plurality of sub-images ("feature vector orf an image in either training data or test data is formed by superimposing the grids to the image and then computing the features from subimages defined by these grids" at page 221, right column, fourth full paragraph, line 3).

Regarding **claim 27**, Murphey et al. discloses a method wherein the steps of identifying at least one sub-image and modifying the initial grid pattern in response to the identified sub-image are repeated iteratively until a termination event is recorded

("The above process repeats until the number of subimages exceeds a preset number" at page 221, right column, third full paragraph, line 3).

Regarding **claim 28**, Murphey et al. discloses a method wherein the termination event comprises producing a modified grid that divides the class composite image into a threshold number of sub-images ("The above process repeats until the number of subimages exceeds a preset number" at page 221, right column, third full paragraph, line 3).

7. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Murphey et al, common knowledge and Krumm et al. as applied to claim 9 above, and further in view of Gokturk et al. (US 2003/0169906).

The Murphey et al., common knowledge and Krumm et al. combination discloses the elements of claim 9 as described above.

The Murphey et al., common knowledge and Krumm et al. combination does not disclose that the pattern recognition classifier includes a support vector machine.

Gokturk et al. teaches a system in the same field of endeavor of vehicle occupant detection ("One application where occupant classification system is gaining use is with vehicle restraint and airbag deployment systems" at paragraph 0060, line 1) wherein the pattern recognition classifier includes a support vector machine (figure 1, numeral 120; "SVMs" at paragraph 0106, line 7).

It would have been obvious at the time the invention was made to one of ordinary skill in the art to utilize the support vector machine of Gokturk et al. in the classifier of the Murphey et al., common knowledge and Krumm et al. combination as "SVMs

minimize the risk of misclassifying previously unseen data" (Gokturk et al. at paragraph 0089, line 1) and "Techniques such as SVMs, neural networks and HMMs…could be combined by the depth images", thereby yielding a more accurate detection (Gokturk et al. at paragraph 0106, line 6).

8. Claim 24 is rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Murphey et al, common knowledge and Krumm et al. as applied to claim 19 above, and further in view of common knowledge in the art as evidenced by Jackway et al. (US 2002/0051571).

The Murphey et al., common knowledge and Krumm et al. combination discloses the elements of claim 19 as described above.

The Murphey et al., common knowledge and Krumm et al. combination does not explicitly disclose that the at least one feature value includes a coarseness measure associated with each sub-image.

However, as shown in the disclosure, depending on the input image type, an appropriate feature type may be employed for optimum results ("For different types of training images, one can use feature image differently" at page 221, left column). The method of Murphey et al. discloses the use of texture images as a possible type of training image ("texture image" at section 2, paragraph 2, line 4).

Accordingly, it would have been obvious at the time the invention was made of one of ordinary skill in the art to use coarseness as a feature value when evaluating

texture images as “Image texture can be qualitatively evaluated as having one or more of the properties of fineness, coarseness” (Jackway et al. at paragraph 0004, line 6).

Response to Arguments

Summary of Remarks (@ response page labeled 9): The abstract is not prohibited from incorporating reference numerals.

Examiner’s Response: MPEP § 608.01(b) section C states “The sheet or sheets presenting the abstract may not include other parts of the application or other material” as the abstract should enable the reader to " determine quickly from a cursory inspection of the nature and gist of the technical disclosure” (see section A). Therefore, the objection to the abstract is maintained.

Summary of Remarks (@ response pages labeled 10 and 11): The Murphey reference does not disclose how it would be used for head tracking with regard to Owechko.

Examiner’s Response: This argument is moot in view of the new grounds of rejection.

Summary of Remarks (@ response page labeled 11): The Murphey reference does not suggest “any utility to be gained from the addition of the depth data or suggest the extension of the grid generation algorithm to depth data".

Examiner’s Response: The above modified rejections incorporate common knowledge in the art that explain why one would seek to extend the two-dimensional algorithm of the Murphey reference to three dimensions by means of including depth data.

Conclusion

9. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL.** See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to KATRINA FUJITA whose telephone number is (571)270-1574. The examiner can normally be reached on M-Th 8-5:30pm, F 8-4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vikkram Bali can be reached on (571) 272-7415. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Katrina Fujita/
Examiner, Art Unit 2624

/Vikkram Bali/
Supervisory Patent Examiner, Art Unit 2624